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A PREDICTIVE MODEL OF FIELD SALES ACTIVITY FOR SALES TERRITORY DESIGN USING  
GIS (REAL TRAVELLING SALESMAN PROBLEM, BUSINESS GEOGRAPHICS)  
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Field sales are an integral part of the marketing activities of many organisations. The design of appropriate sales territories is a difficult and complex process. One of the obvious objectives of the sales territory design process is to ensure that accounts allocated to a territory can be adequately serviced within the time resources available to the salesperson.

This research proposes a model of field sales activity to portray the calling decisions of an efficient field salesperson. The extent of account coverage which could be achieved by a salesperson in a given territory over a planning period is represented as a complex function of the call frequency and duration required to adequately service each individual account, the priority given to each account, and the geography of the territory. The territory geography consists of the location of accounts and the base at which sales trips begin and end, and the transportation infrastructure used by the salesperson to move between accounts. The decision faced by the salesperson to determine which accounts to call on, is referred to as the Real Travelling Salesman Problem (RTSP).

A conceptual model of the tasks which constitute the sales territory design process is proposed to provide the context of this research and a framework for reviewing previous research. A fast heuristic algorithm to solve the RTSP is developed and tested.

Recognising the growth of Business Geographics or GeoBusiness applications, a prototype simulation program based on the field sales activity model is developed and tested within a \*Geographic\* \*Information\* \*System\* (\*GIS\*) environment, to predict the account coverage which could be achieved with a particular territory design. The simulation program provides a 'what-if' decision support tool for sales managers and researchers, which could be adapted for \*salesperson\* \*planning\* and training, as well as non-sales applications.

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